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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/639,946	08/17/2000	Hidehiko Nagaya	0834-0275-3	4852
22850	7590	01/26/2005	EXAMINER	
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			TSAI, HENRY	
			ART UNIT	PAPER NUMBER
			2183	

DATE MAILED: 01/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/639,946

Applicant(s)

NAGAYA ET AL.

Examiner

Henry W.H. Tsai

Art Unit

2183

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 11/19/04.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 19,22-25,32-35,37-40,58-68 and 70-99 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 34,35,61,65-67,76,83-85,88 and 97 is/are allowed.
- 6) ☒ Claim(s) 19,22-25,32,33,37-40,58-60,62-64,68,70-75,77-82,86,87,89-96,98 and 99 is/are rejected.
- 7) ☒ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All   b) ☐ Some \*   c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

***Claim Rejections - 35 USC § 112***

2. Claims 19, 22-25, 32, 33, 37-40, 58-60, 62-64, 68, 70-75, 77-82, 86, 87, and 89-96 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 19, lines 3-6, the angle between the second straight cutting edge and the first straight cutting edge; and the angle between the second straight cutting edge and the third straight cutting edge are not well defined since the angles can be defined from many views. Similar problems exist in the other claims 22, 32, 68, 70, and 77.

Art Unit: 2183

Applicant is required to review the claims and correct all language which does not comply with 35 U.S.C. § 112, second paragraph.

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 19, 22, 23, 25, 32, 33, 37, 38, 40, 58-60, 62-64, 68, 70, 71, 73-75, 77-82, 86, 87, and 89-96 are rejected under 35 U.S.C. 102(b) as being anticipated by Satran et al. (U.S. Patent No. 5,383,750), hereafter referred to as Satran et al.'750.

Referring to claim 19, Satran et al.'750 discloses as claimed a tip (see Fig. 2) comprising a first straight cutting edge (11, see Fig. 2), a second straight cutting edge (10, see Fig. 2), a third straight cutting edge (13, see Fig. 2) and a fourth straight cutting edge (12, see Fig. 2), said second

Art Unit: 2183

cutting edge (10, see Fig. 2) being at an angle of less than  $90^\circ$  (broadly, as viewed from figure 2) with said first cutting edge (11, see Fig. 2), said third cutting edge (13, see Fig. 2) being at an angle of less than  $90^\circ$  with said second cutting edge (10, see Fig. 2), said fourth cutting edge (12, see Fig. 2) being at an angle of less than  $90^\circ$  (broadly, as viewed from figure 3) with said third cutting edge (13, see Fig. 2), wherein the tip is formed of a substantially quadrilateral-shaped plate, and wherein said fourth cutting edge (12, see Fig. 2) is at an angle of greater than  $90^\circ$  (broadly, as viewed from figures 2 or 3) with respect to said first cutting edge whereby said tip is configured to be utilized in various cutting orientations. Note claims 22, 68, 70, 77 recite the corresponding limitations in claim 19 as set forth above.

Referring to claim 32, Satran et al.'750 discloses as claimed a cutting tool comprising: an end-milling tool body (21, see Figs. 5 and 6a-d) having a distal end; and a plurality of tips (1, see Figs. 5 and 6a-d) mounted to the distal end of the tool body, each tip of the plurality of tips comprising a plate of substantially quadrilateral shape, the plate having a first straight cutting edge (11, see Fig. 2), a second straight cutting edge (10, see Fig. 2), and a third straight cutting edge (13, see Fig. 2), said second cutting edge (10, see Fig. 2)

Art Unit: 2183

being at an angle of less than  $90^\circ$  (broadly, as viewed from figure 2) with said first cutting edge (11, see Fig. 2), said third cutting edge (13, see Fig. 2) being at and an angle of less than  $90^\circ$  (broadly, as viewed from figure 2) with said second cutting edge (10, see Fig. 2), wherein at least one of a first corner between said first cutting edge (11, see Fig. 2) and said second cutting edge (10, see Fig. 2) and a second corner between said second cutting edge (10, see Fig. 2) and said third cutting edge (13, see Fig. 2) is arranged to project along an outer periphery of the distal end of the tool body (see Figs. 5 and 6a-6d, regarding the cutting corners projecting along an outer periphery of the distal end of the tool body 21).

As to claims 23, 38, and 71, Satran et al.'750 also discloses: the plate (see Fig. 1) has a seating face (3, see Fig. 3) and a cutting edge face (formed by 11, 12, 13, and 10, see Fig. 3), wherein the tip has at least one side surface (4a, and 4b, see Fig. 1) that extends between the seating face and the cutting edge face, wherein the at least one side surface (4a, and 4b, see Fig. 1) outwardly inclines from the seating face to the cutting edge face (see Fig. 1).

As to claims 25, 40, and 73, Satran et al.'750 also discloses: the seating face (3, see Fig. 3) is not parallel to

Art Unit: 2183

the cutting edge face (formed by 11, 12, 13, and 10, see Fig. 3).  
3).

As to claims 37, 89, and 90, Satran et al.'750 also discloses: each tip of the plurality of tips has a fourth straight cutting edge (12, see Fig. 3), said fourth cutting edge being at an angle of less than  $90^\circ$  (broadly, as viewed from figure 2) with said first cutting edge or said third cutting edge (13, see Fig. 3).

As to claim 33, Satran et al.'750 also discloses: said first cutting edge (11, see Fig. 3) extends inward in a radial direction of the tool body (21, see Figs. 6a-d) and is defined as a front cutting edge extending to a rotation axis of the tool body. Note the Satran et al.'750's cutting tips are indexable (or rotatable).

As to claims 58, and 82, Satran et al.'750 also discloses: all of the plurality of tips (1, see Fig. 2) are identical in shape (see Figs. 6a-d).

As to claims 59, 62, 74, and 86, Satran et al.'750 also discloses: said tip has two opposing cutting edges (11, and 13, see Fig. 2) defined as long cutting edges and another two opposing cutting edges (10, and 12, see Fig. 2) defined as short cutting edges, and wherein said long cutting edges are not parallel to one another.

Art Unit: 2183

As to claims 60, 63, 75, and 87, Satran et al.'750 also discloses: one of said short cutting (10, and 12, see Fig. 2) is said second cutting edge(10, see Fig. 2).

As to claim 64, Satran et al.'750 also discloses: said plurality of tips (1, see Fig. 2) comprises at least four tips (see Figs. 6a-d).

As to claim 78, Satran et al.'750 also discloses: at least one of the first edge corner (between 11, and 10, see Fig. 2) and the second edge corner (between 13, and 10, see Fig. 2) is arranged along a front edge of the distal end of the tool body (see Figs. 5 and 6a-6d, regarding the cutting corners projecting along an outer periphery of the distal end of the tool body 21).

Note Satran et al.'750 also discloses the limitations in claims 79, 80, and 81 as described in claims 19, and 32 (see Figs. 6a-d, regarding Satran et al.'750's tool comprising a plurality of tips 1 including the second, third, and fourth tips)

As to claims 91, 92, 93, 94, 95, and 96, Satran et al.'750 also discloses: the plate has a cutting edge face (formed by 11, 12, 13, and 10, see Fig. 3), and wherein said cutting edge face is nonsymmetrical (see Fig. 3).



Art Unit: 2183

5. Claims 98 and 99 are rejected under 35 U.S.C. 102(b) as being anticipated by Shirley et al. (U.S. Patent No. 5,944,456), hereafter referred to as Shirley et al.'456.

Referring to claim 98, Shirley et al.'456 discloses, as claimed, a tip (300, see Fig. 25) comprising a substantially planar plate including a first edge corner (307, see Fig. 25) having a corner angle of less than  $90^\circ$ , a second edge corner (207, see Fig. 25) having a corner angle of greater than  $90^\circ$ , a third edge corner (including 211 and 210, see Fig. 25) having a corner angle of  $90^\circ$ , and a fourth edge corner (including 211 and 210, see Fig. 25) having a corner angle of  $90^\circ$ .

Referring to claim 99, Shirley et al.'456 discloses, as claimed, 99 a cutting tool (10, see Fig. 1) comprising: an end-milling tool body (18, see Fig. 1) having a distal end; and a first tip (300, see Fig. 25) mounted to the distal end of the tool body, said first tip (300, see Fig. 25) comprising a substantially planar plate including a first edge corner having a corner angle (307, see Fig. 25) of less than  $90^\circ$ , a second edge corner (207, see Fig. 25) having a corner angle of greater than  $90^\circ$ , a third edge corner (including 211 and 210, see Fig. 25) having a corner angle of  $90^\circ$ , and a fourth edge corner (including 211 and 210, see Fig. 25) having a corner angle of  $90^\circ$ .

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 24, 39, and 72 are rejected under 35 U.S.C. 103(a) as being unpatentable over Satran et al.'750 in view of Satran et al. (U.S. Patent No. 5,718,540) hereafter referred to as Satran et al.'540.

Satran et al.'750 discloses the claimed invention except for: the seating face is parallel to the cutting edge face.

Satran et al.'540 discloses a tip (I, See Fig. 2) the seating face (1, see Fig. 2) is parallel to the cutting edge face (including cutting edges 5 see Fig. 2).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Satran et

Art Unit: 2183

al.'750's tool to comprise the plurality of tips comprising the seating face is parallel to the cutting edge face, as taught by Satran et al.'540, in order to simplify the process for manufacturing the Satran et al.'750's cutting tool. Further, as shown in re Dailey, 149 USPQ 47 (CCPA 1976), to make changes in form/shape generally does not provide patentable weight to the claimed invention.

#### **Response to Arguments**

8. Applicant's arguments mailed 11/19/04 have been considered but are moot in view of the new ground(s) of rejection.

Regarding Election/Restrictions, Applicant's argument is deemed to be persuasive. The Restriction requirement has been withdrawn.

However, as set forth in the art rejections above, Satran et al.'750, Satran et al.'540, and Shirley et al.'456 teach the claimed invention.

#### **Allowable Subject Matter**

Art Unit: 2183

9. Claims 34, 35, 61, 65-67, 76, 83-85, 88, and 97 are allowed.

10. The following is a statement of reasons for the indication of allowable subject matter: Satran et al.'750, Satran et al.'540, and Shirley et al.'456, the closest references; and the other prior art do not teach or fairly suggest: one of the long cutting edges in a first of the plurality of tips projecting towards the distal end of the tool body is defined as a first front peripheral cutting edge and one of the short cutting edges in the first of the plurality of tips is defined as a first outer peripheral cutting edge; and one of the short cutting edges in a second of the plurality of tips projecting towards the distal end of the tool body is defined as a second front peripheral cutting edge and one of the long cutting edges in the second of the plurality of tips is defined as a second outer peripheral cutting edge (in claim 34 and 97); and

the sub-cutting tooth portion is provided adjacent a joint between said first cutting edge and said second cutting edge; said sub-cutting tooth portion is slightly inclined with respect to main cutting tooth portion; and wherein said corner angle of said first edge corner is defined as an angle between said main

Art Unit: 2183

cutting tooth portion of said first cutting edge and said second cutting edge (in claims 61, 65, 76, and 88);

the first tip and said third tip are provided within a first groove on said tool body, said first tip and said third tip being provided at different locations along the axis of rotation, said first tip and said third tip being spaced apart along the axis of rotation; and said second tip and said fourth tip are provided within a second groove on said tool body, said second tip and said fourth tip being provided at different locations along the axis of rotation, said second tip and fourth tip being spaced apart along the axis of rotation (in claims 66 and 84); or

first, second, third and fourth tips; one of said long cutting edges of said first tip extends along the outer periphery; one of said short cutting edges of said second tip extends along the outer periphery; one of said long cutting edges of said third tip extends along the outer periphery; and one of said long cutting edges of said fourth tip extends along the outer periphery (in claim 83) in combination with the other limitations in the respective independent claims and the combination is not obvious.

Art Unit: 2183

**Conclusion**

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.


**Contact Information**

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dr. Henry Tsai whose telephone number is (571) 272-4176. The examiner can

Art Unit: 2183

normally be reached on Monday-Thursday from 8:00 AM to 5:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner supervisor, Eddie Chan, can be reached on (571) 272-4162. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the TC central telephone number, 571-272-2100.

13. In order to reduce pendency and avoid potential delays, Group 2100 is encouraging FAXing of responses to Office actions directly into the Group at fax number: 703-872-9306. This practice may be used for filing papers not requiring a fee. It may also be used for filing papers which require a fee by applicants who authorize charges to a PTO deposit account. Please identify the examiner and art unit at the top of your cover sheet. Papers submitted via FAX into Group 2100 will be promptly forward to the examiner.



HENRY W. H. TSAI  
PRIMARY EXAMINER

January 24, 2005